CERTIFICATE

This is to certify that all corrections and suggestions pointed out by the Indian /Foreign Examiner(s) are incorporated in the Thesis titled "Design and implementation of fractional order based CDM- PI$^{\lambda}$D$^{\mu}$ controller in SO_2 emission control process" submitted by Ms.C.Maheswari.

~~Signature of the Joint Supervisor~~
(if applicable)

29/10/14
Signature of the Supervisor
Dr.K. KRISHNAMURTHY, M.E.,Ph.D.,FIE,
DEAN (SCHOOL OF BUILDING & MECHANICAL SCIENCES)
KONGU ENGINEERING COLLEGE,
PERUNDURAI, ERODE-638 052,
TAMILNADU, INDIA

Place: Perundurai
Date: 29/10/14

CENTRE FOR RESEARCH
ANNA UNIVERSITY, CHENNAI – 600 025

PROCEEDINGS OF THE Ph.D. VIVA-VOCE EXAMINATION OF Ms.C.MAHESWARI HELD AT 1.00 P.M. ON 29.10.2014 IN THE DEPARTMENT OF MECHANICAL ENGINEERING, KONGU ENGINEERING COLLEGE, PERUNDURAI – 638 052.

The Ph.D. Viva-Voce Examination of Ms.C.Maheswari (Reg. No.10931222003) on her Ph.D. Thesis Entitled "Design and implementation of fractional order based CDM- PIᴧDᵘ controller in SO_2 emission control process" was conducted on 29.10.2014 at 1.00 P.M. in the Department of Mechanical Engineering, Kongu Engineering College, Perundurai – 638 052.

The following Members of the Oral Examination Board were present:

1. Dr. Sanjay P Danao — Indian Examiner
   Professor/Principal
   AISSMS College of Engineering,
   Pune, Maharashtra- 411 001.

2. Dr. V. Prasanna Moorthy — Subject Expert
   Associate Professor
   Department of Electrical and Electronics Engineering
   Government College of Technology
   Coimbatore - 641 013.

3. Dr.K.Krishnamurthy, — Supervisor & Convener
   Professor and Dean
   School of Building and Mechanical Sciences
   Kongu Engineering College
   Perundurai, Erode – 638 052.

The research scholar, Ms.C.Maheswari presented the salient features of her Ph.D. work. This was followed by questions from the board members. The questions raised by the Foreign and Indian Examiners were also put to the scholar. The scholar answered the questions to the full satisfaction of the board members.

The corrections suggested by the Indian/Foreign examiner have been carried out and incorporated in the Thesis before the Oral examination.

Based on the scholar's research work, her presentation and also the clarifications and answers by the scholar to the questions, the board recommends that Ms. C.Maheswari be awarded Ph.D. degree in the Faculty of Mechanical Engineering.

1. Indian Examiner

2. 29/10/2014 Subject Expert

3. 29/10/14 Supervisor & Convener

Dr.K. KRISHNAMURTHY, M.E.,Ph.D.,FIE,
DEAN (SCHOOL OF BUILDING & MECHANICAL SCIENCES)
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TAMILNADU, INDIA.

ANNA UNIVERSITY
CHENNAI 600 025

CERTIFICATE

The research work embodied in the present Thesis entitled **"DESIGN AND IMPLEMENTATION OF A NEW FRACTIONAL ORDER BASED CDM- $PI^{\lambda}D^{\mu}$ CONTROLLER IN SO_2 EMISSION CONTROL PROCESS"** has been carried out in the Department of Mechatronics Engineering, Kongu Engineering College, Perundurai. The work reported herein is original and does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion or to any other scholar.

I understand the University's policy on plagiarism and declare that the thesis and publications are my own work, except where specifically acknowledged and has not been copied from other sources or been previously submitted for award or assessment.

Counter signed by

C.MAHESWARI
RESEACH SCHOLAR
Place:
Date:

Dr. K.KRISHNAMURTHY
SUPERVISOR
Professor,
Department of Mechatronics Engineering,
School of Building and Mechanical Sciences, Kongu Engineering College,
Perundurai - 638 052.